

CLAIMS

What is claimed is:

1. A used toner collecting apparatus of a laser printer, which collects the used toner, which is transported from a cleaner that removes the used toner remaining after image developing in a body of the laser printer, comprising:

a collecting container at the body, having a used toner inlet through which the used toner, transported from the cleaner, enters; and

a shattering member, inside the collecting container, having a breaking blade to break the used toner that drops through the used toner inlet.

2. The used toner collecting apparatus of claim 1, wherein the shattering member comprises a first slant and a second slant each respectively at an obtuse angle to a dropping direction of the used toner dropped from the used toner inlet.

3. The used toner collecting apparatus of claim 2, wherein the breaking blade borders the first slant and second slant in parallel with the dropping direction of the used toner.

4. The used toner collecting apparatus of claim 1, wherein the breaking blade is disposed below the used toner inlet.

5. The used toner collecting apparatus of claim 1, wherein the shattering member is attached at a wall of the collecting container.

6. The used toner collecting apparatus of claim 1, wherein the breaking blade comprises:

a first blade face in parallel with the dropping direction of the used toner; and

a second blade face having a predetermined slope with respect to the dropping direction of the used toner.

7. A used toner collecting apparatus of a laser printer, which collects the used toner, which is transported from a first cleaner to remove the used toner left on a transfer medium, and a second cleaner to remove the used toner left on a photosensitive medium, the used toner collecting apparatus comprising:

a collecting container, having a first used toner inlet through which the used toner, transported from the first cleaner, enters, and a second used toner inlet through which the used toner transported from the second cleaner, enters; and

a shattering member under at least one of the used toner inlets inside the collecting container, having a breaking blade to break the used toner that drops from the corresponding used toner inlet.

8. The used toner collecting apparatus of claim 7, wherein the collecting container comprises:

a first space portion having a first volume to admit the used toner from the first used toner inlet; and

a second space portion having a second volume to admit the used toner from the second used toner inlet, wherein the shattering member is disposed at one of the first and second space portions, having a larger volume.

9. The used toner collecting apparatus of claim 8, wherein
the first space portion is wider than the second space portion in a horizontal direction,
and
the shattering member is disposed below the first used toner inlet of the first space portion.

10. The used toner collecting apparatus of claim 9, wherein the shattering member comprises a first slant at a first obtuse angle to a dropping direction of the used toner to guide the used toner, dropped from the first used toner inlet, to one side of the shattering member; and

a second slant at a second obtuse angle to the dropping direction of the used toner to guide the used toner, dropped from the first used toner inlet to the other side of the dropping direction, wherein the breaking blade is disposed at a border between the first slant and second slant just below the first used toner inlet.

11. A collecting apparatus of an image forming device, having a photosensitive drum to act as a photosensitive medium and a transferring belt in contact with the photosensitive drum, both of which having used toner stuck thereto, comprising:

- a collecting container, having a first used toner inlet through which unstuck used toner drops before entering the collecting container; and

- a shattering member, inside the collecting container, having a breaking blade to break down the used toner, which drops through the first used toner inlet.

12. A collecting apparatus of an image forming device to collect used toner, including a photosensitive drum and a transferring belt in contact with the photosensitive drum, both of which having used toner stuck thereto, comprising:

- a collecting container, having at least one of first and second used toner inlets through which unstuck used toner enters the collecting container; and

- a shattering member, inside the collecting container, having a breaking blade to break the used toner that enters the collecting container.

13. The collecting apparatus according to claim 12, wherein the shattering member comprises:

- a first slant; and

- a second slant, wherein the first and second slants respectively form obtuse angles to a dropping direction of the used toner entering the collecting container through the first used toner inlet.

14. The collecting apparatus according to claim 13, wherein the breaking blade borders the first and second slants.

15. The collecting apparatus according to claim 14, further comprising:

- a top end of the breaking blade; and

- a lower end of the used toner inlet, wherein the top end of the breaking blade extends to just below the lower end of the first used toner inlet.

16. The collecting apparatus according to claim 12, wherein the shattering member is attached to a wall of the collecting container.

17. The collecting apparatus according to claim 12, wherein the breaking blade comprises:
a first blade face in parallel with the dropping direction of the used toner; and
a second blade face having a predetermined slope with respect to the dropping direction of the used toner.

18. The collecting apparatus according to claim 12, further comprising a first cleaner to remove the used toner from the transferring belt.

19. The collecting apparatus according to claim 18, wherein the first cleaner comprises:
a cleaning blade to contact the transferring belt and to remove the used toner therefrom;
an auger to collect the used toner removed by the cleaning blade; and
a conveying duct to guide the used toner collected by the auger to the collecting container.

20. The collecting apparatus according to claim 19, wherein the conveying duct comprises:
an inclined plane along which the used toner travels; and
an outlet at a low portion of the conveying duct and below the inclined plane.

21. The collecting apparatus according to claim 12, further comprising a second cleaner to remove the used toner from the photosensitive drum.

22. The collecting apparatus according to claim 21, wherein the second cleaner comprises:
a cleaning blade to contact the photosensitive drum and to remove the used toner therefrom;
an auger to transport the used toner removed by the cleaning blade to a side of the cleaner;
a housing to collect the used toner which is transported by the auger; and
a conveying pipe to guide the used toner collected by the auger to the collecting container.

23. The collecting apparatus according to claim 22, wherein the conveying pipe comprises:

- an upper portion; and
- a used toner discharge duct at the upper portion of the conveying pipe.

24. The collecting apparatus according to claim 23, wherein the used toner discharge duct drops used tone into the second used toner inlet.

25. The collecting apparatus according to claim 22, wherein the housing comprises a toner drop through which used toner, transported by the auger, drops into the housing.

26. The collecting apparatus according to claim 22, wherein the conveying pipe comprises a pump to drive the used toner.

27. The collecting apparatus according to claim 26, wherein the pump is a flexible auger.

28. The collecting apparatus according to claim 12, wherein the collecting container further comprises:

- a rear wall in which the first and second used toner inlets are formed;
- a front wall formed in front of the rear wall; and
- first and second space portions, between the rear and front walls, into which used toner is admitted after passing through the first and second used toner inlets, respectively.

29. The collecting apparatus according to claim 28, wherein the first and second space portions respectively have widths and heights, the width of the first space portion being greater than the height of the first space portion, and the height of the second space portion being greater than a width of the second space portion.

30. The collecting apparatus according to claim 12, wherein the shattering member allows the used toner to spread evenly from a side to a side of the shattering member.

31. A collecting apparatus of an image forming device to collect used toner, comprising:

a collecting container, having at least one of first and second used toner inlets through which the used toner drops and enters the collecting container; and

a shattering member, inside the collecting container, having a breaking blade to break the used toner that enters the collecting container, wherein the broken used toner spreads evenly across the collecting container.